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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/732,942

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Rita L. Faunce

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EXAMINER

BERHANU, SAMUEL

ART UNIT

PAPER NUMBER

2858

MAIL DATE

DELIVERY MODE

08/10/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/732,942	Applicant(s) FAUNCE ET AL.	
	Examiner SAMUEL BERHANU	Art Unit 2858	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 June 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

This is in response to an amendment/response filed on 06/03/2009

Claims 1-9 are currently pending.

Claim 1 is amended.

No new Claims added.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-2 and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Morioka et. al. (US 5,831,412) (hereinafter Morioka).

As to Claim 1, Morioka discloses in Figures 5 and 8, a battery charge indicator for sensing and indicating a near full state of charge of a lithium ion battery, the battery charge indicator comprising:

a sensing circuit(see **Figure 8, element 79, and Column 11, lines 15-16, and Column 13, lines 42-48**) for sensing charging current to said lithium ion battery (77) and providing a first charge indication signal based upon comparing the magnitude of said charging current with a first predetermined value (**see column 14, lines 11-19**) and generating a first charge indication signal solely as a function of said charging current when said charging current is less than or equal to said first predetermined value (see

Art Unit: 2858

Column 13, lines 42-47), is representative of a first predetermined charge state representative of a near full state of charge of said lithium ion battery; and

an indicator **(75)** responsive to said first charge indication signal for providing an indication when said lithium ion battery is at a near full state of charge **(see column 13, lines 47-49 and Column 14, lines 16-19)**.

As to Claim 2, Morioka discloses in Figure 8, element 75, wherein said indicator includes a first visual indication **(Display 87 is a visual indication)**.

As to Claim 4, Morioka discloses in Figure 8, element 75, wherein said sensing circuit is configured to sensing other charging states of said battery, other than stud near full state of charge.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 3, 5 and 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morioka in view of Kaite et. al. (US 5,589,755) (hereinafter Kaite).

As to Claim 3, Morioka discloses all of the Claim limitations except, wherein said first visual indication is a second LED.

However, Kaite discloses in Figures 4 and 11, elements 1, 2 and 3, wherein said first visual indication is a LED.

It would have been obvious to a person having ordinary skill in the art at the time of the invention to add LEDs in Morioka's charge control system as taught by Kaite in order to inform the user the detection of the full charge state.

As to Claim 5, Morioka in view of Kaite discloses, wherein said sensing circuit is configured to sense-when compare the battery charging current with a second predetermined value that is less than said first predetermined value and generating a second charge indication signal representing that said charging current is at a second predetermined charge state other than said near fully charged state.

As to Claim 6, Morioka in view of Kaite discloses, further including a second visual indication (see figure 4 of Kaite and column 6, lines 22-29).

As to Claim 7, Morioka in view of Kaite discloses, wherein said sensing circuit is configured to generate one or more a third charge indicating indication signals selected from the group indicating that the state of charge of said battery is at; a state of charge near full charge; at full charge or between said near charge state and said fully charged state different from said first predetermined charge state and said second predetermined charge state (See Kaite's figure 9, step 23, and column 6, lines 22-29).

As to Claim 8, Morioka in view of Kaite discloses, wherein said second visual indication is a second LED.

5. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Morioka in view of Kaite as applied to claim 7 above, and further in view of Matsunaga et. al. (US 6,771,043) (hereinafter Matsunaga).

Art Unit: 2858

As to Claim 9, neither Morioka nor Katie discloses explicitly, wherein sensing circuit is configured to define first, second and third charging states and wherein said first LED is a red LED and said second LED is a green LED and in said first state, said red LED is illuminated and in said second state both said red and green LEDs are illuminated and in said third state, only said green LED is illuminated

Matsunaga discloses in Figure 16 and Column 28, lines 43-55, wherein sensing circuit is configured to define fast, second and third charging states and wherein said first LED is a red LED and said second LED is a green LED and in said first state, said red LED is illuminated and in said second state both said red and green LEDs are illuminated and in said third state, only said green LED is illuminated (see Column 28, lines 43-55).

It would have been obvious to a person having ordinary skill in the art at the time of the invention to use different color LEDs in Morioka's charging system as taught by Matsunaga in order to inform the user the charging status of the battery to avoid memory effect, short circuit and battery depletion due to over-discharging.

Response to Arguments

6. Applicant's arguments filed 06/03/2009 have been fully considered but they are not persuasive.

7. Applicant argues that Morioka does not disclose or suggest a circuit that can generate a signal representative of the charge of a lithium ion battery based on solely on the charging current being supplied to the battery. This is incorrect

Morioka discloses in column 15, lines 14-21 determining the full-charge of the battery based on charging current

full-charge detector 73. Then, the full-charge detector 73 detects whether or not the current measured by the ammeter 29 has fallen below the predetermined value. When the detector 73 detects that the current has fallen below the predetermined value, it determines that the secondary battery 65 has been fully charged. Then, the detector 73 generates a signal, which is input to the full-charge display 75. Upon receipt of the signal, the display 75 displays the full-charge state of the lithium ion secondary battery 65.

With regard to having only current sensor for determining the full-charge of the battery and eliminating voltage measurement circuits: By eliminating voltage sensor/detector circuit, cited in the Morioka reference, applicant neither extends the life of the batteries being charged, nor makes it easier to fully charge a battery since the charging current is determined based on a voltage value across the resistor. Therefore it would be obvious to one skilled in the art at the time the invention was made that the elimination of an element and its function in a combination is an obvious expedient if the remaining elements perform the same functions as before. See *Ex parte Wu* , 10 USPQ 2031 (Bd. Pat. App. & Inter. 1989), *In re Larson*, 340 F.2d 965, 144 USPQ 347 (CCPA 1965) and *In re Kuhle*, 526 F.2d 553, 188 USPQ 7 (CCPA 1975).

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SAMUEL BERHANU whose telephone number is (571)272-8430. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Assouad can be reached on 571-272-2210. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2858

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Edward Tso/
Primary Examiner, Art Unit 2858

/Samuel Berhanu/
Examiner, Art Unit 2858